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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/630,972 | 07/31/2003 | Jukka A. Vainio | 60091.00219 | 1842 |
| 32294 7590 04/11/2007 SQUIRE, SANDERS & DEMPSEY L.L.P. 14TH FLOOR 8000 TOWERS CRESCENT TYSONS CORNER, VA 22182 | | | EXAMINER WEINTROP, ADAM S | |
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| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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|------------------------------|-------------------------------|-------------------------------|--|
| Office Action Summary | Application No. 10/630,972 | Applicant(s) VAINIO ET AL. | |
| | Examiner Adam S. Weintrop | Art Unit 2109 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>12/19/04</u> (<u>12-21-04</u>) | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. **Claims 1-7 and 9-23** are objected to because of the following informalities:

Regarding **claim 1**, the phrase "a computer cluster" on claim lines 3-4 has already been defined and should be replaced with -- the computer cluster -- to establish proper antecedent basis. Also, the term "state information" on claim line 7 has already been defined and should be replaced with -- the state information --.

Regarding **claims 2-7**, the phrase "A method" on claim line 1 should be replaced with -- The method --.

Regarding **claim 2**, the term "state information" on claim line 2 has already been defined and should be replaced with -- the state information --.

Regarding **claims 9-12**, the phrase "A computer cluster" on claim line 1 should be replaced with -- The computer cluster --.

Regarding **claim 13**, the phrase "the ability" on claim line 6 should be replaced with -- an ability -- since it has not been defined previously.

Regarding **claim 14**, the phrase "A computer node" on claim line 1 should be replaced with -- The computer node --. Also, the term "state information" on claim line 2 has already been defined and should be replaced with -- the state information --.

Regarding **claim 15**, the term "state information" on claim line 8 has already been defined and should be replaced with -- the state information --.

Regarding **claims 16-18**, the phrase "A method" on claim line 1 should be replaced with -- The method --.

Regarding **claim 18**, the phrase "a receiving" on claim line 1 should be replaced with -- receiving --.

Regarding **claim 19**, the phrase "a computer cluster" on claim lines 3-4 has already been defined and should be replaced with -- the computer cluster -- to establish proper antecedent basis. Also, the term "state information" on claim line 8 has already been defined and should be replaced with -- the state information --.

Regarding **claims 20-23**, the phrase "A method" on claim line 1 should be replaced with -- The method --.

Regarding **claim 20**, the term "state information" on claim line 2 has already been defined and should be replaced with -- the state information --.

Regarding **claim 22**, the term "state information" on claim lines 1-2 has already been defined and should be replaced with -- the state information --. Also, the term "a heartbeat acknowledgment method" on claim lines 4-5 should be replaced with -- the heartbeat acknowledgement message -- to establish proper antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-5, 8, 13-14, 15, 18, and 19-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding **claims 1-5**, the claims are directed towards a method that involves transmitting, receiving, retrieving, sending, examining, and determining. The claims do not result in a real world output such as storing or displaying to a user. In order for a claim to be statutory, it must result in a useful, concrete, and tangible result.

Regarding **claim 8**, the claim is directed towards a system that has means for transmitting, means for receiving, means for retrieving, and means for sending. The claim does not result in a real world output such as storing or displaying to a user. In order for a claim to be statutory, it must result in a useful, concrete, and tangible result.

Regarding **claims 13-14**, the claims are directed towards a node that includes means for performing, means for receiving, means for retrieving, and means for sending. The claims do not result in a real world output such as storing or displaying to a user. In order for a claim to be statutory, it must result in a useful, concrete, and tangible result.

Regarding **claims 15 and 18**, the claims are directed towards a method that involves transmitting, waiting, and receiving. The claims do not result in a real world output such as storing or displaying to a user. In order for a claim to be statutory, it must result in a useful, concrete, and tangible result.

Regarding **claims 19-23**, the claims are directed towards a method that involves waiting, receiving, transmitting, examining, retrieving, and determining. The claims do

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not result in a real world output such as storing or displaying to a user. In order for a claim to be statutory, it must result in a useful, concrete, and tangible result.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1-23** are rejected under 35 U.S.C. 102(e) as being anticipated by anticipated by Mann et al. (US 2002/0169867 A1).

Regarding **claim 1**, Mann et al. anticipates a method for transferring state information in a computer cluster comprising a plurality of computer nodes, the method comprising the steps of:

- Transmitting a heartbeat message from a first computer node of a computer cluster to a second computer node of the computer cluster (section 0047, lines 1-6, where the “discovery event” is interpreted as a heartbeat message since it identifies the source and request a response from the other host), the second computer node including at least one resource for performing at least one cluster-specific task (section 0027, lines 1-11, where nodes have instances of services running on them, equivalent to performing a task);

- Receiving the heartbeat message in the second computer node (section 0047, lines 6-9, with the node receiving the discovery event);
- Retrieving state information for a heartbeat acknowledgment message to be sent as a response to said heartbeat message, the state information indicating an ability of said at least one resource to perform said at least one cluster-specific task (section 0047, lines 18-29, with the node gathering status information in response to a status request); and
- Sending the state information in the heartbeat acknowledgment message to the first computer node (section 0047, lines 6-11, with the node publishing the identity event back to the controlling node that includes the status information).

Regarding **claim 2**, Mann et al. anticipates a method according to claim 1, further comprising a step of examining, in response to the receiving step, whether state information is to be retrieved for the heartbeat acknowledgment message (section 0047, lines 18-20, with the node responding by submitting status information if the message request contained a status request, seen as examining the message as to determine if state information is to be retrieved).

Regarding **claim 3**, Mann et al. anticipates a method according to claim 2, wherein the examining step includes examining whether a predetermined condition is filled (section 0047, lines 18-20, with the node responding by submitting status information if the message request contained a status request, this status request is seen as the predetermined condition, as the responding node looks for this condition before sending the status information back to the requesting node).

Regarding **claim 4**, Mann et al. anticipates a method according to claim 3, wherein the retrieving and sending steps are performed when the examining step indicates that the predetermined condition is fulfilled (section 0047, lines 6-22, with the responding node receiving a discovery message that includes the predetermined condition of including a status request, and this status request causes the responding node to gather status information and send it back to the requesting node), and wherein the method further comprises the step of transmitting a heartbeat acknowledgment message without state information when the examining step indicates that the predetermined condition fails to be fulfilled (section 0047, lines 6-18, with the requesting node sending a discovery event, without the condition of including a status request, and the responding node simply returns identity information, equivalent to a heart beat acknowledgment, since it lets the requesting node know the responding node is present and active).

Regarding **claim 5**, Mann et al. anticipates a method according to claim 1, further comprising a step of determining a type of state information to be retrieved for the heartbeat acknowledgment message (section 0047, lines 6-22, with the node responding by submitting status information if the message request contained a status request, seen as determining the type of information to return in the message. The responding node will determine that full status information is being requested, or that basic identity data is being requested as the type of data to be returned).

Regarding **claim 6**, Mann et al. anticipates a method according to claim 1, further comprising a step of storing the state information sent to the first computer node in a

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Management Information Base (MIB) (section 0047, lines 27-29, with the returned information being stored in a database on the requesting computer for further reference, this is seen as equivalent to a MIB, since it stores management information).

Regarding **claim 7**, Mann et al. anticipates a method according to claim 6, further comprising a step of transferring data from the Management Information Base to an entity external to the computer cluster (section 0047, lines 29-32, with the information being supplied to the system administrator, seen as an entity external to the cluster).

Regarding **claim 8**, Mann et al. anticipates a computer cluster comprising a plurality of computer nodes, the computer cluster comprising:

- first means for transmitting a heartbeat message from a first computer node of the computer cluster to a second computer node of the computer cluster (section 0047, lines 1-6, where the "discovery event" is interpreted as a heartbeat message since it identifies the source and request a response from the other host), the second computer node including at least one resource for performing at least one cluster-specific task (section 0027, lines 1-11, where nodes have instances of services running on them, equivalent to performing a task);
- second means for receiving the heartbeat message in the second computer node (section 0047, lines 6-9, with the node receiving the discovery event);
- third means for retrieving state information for a heartbeat acknowledgment message to be sent as a response to said heartbeat message, the state information indicating an ability of said at least one resource to perform said at least one cluster-specific task (section 0047, lines 18-29, with the node gathering status information in

response to a status request); and

- fourth means for sending the state information in the heartbeat acknowledgment message to the first computer node (section 0047, lines 6-11, with the node publishing the identity event back to the controlling node that includes the status information).

Regarding **claim 9**, Mann et al. anticipates a computer cluster according to claim 8, further comprising a Management Information Base (MIB) operably connected to the first computer node for storing the state information sent to the first computer node (section 0047, lines 27-29, with the returned information being stored in a database on the requesting computer for further reference, this is seen as equivalent to a MIB, since it stores management information).

Regarding **claim 10**, Mann et al. anticipates a computer cluster according to claim 9, further comprising first access means for accessing the Management Information Base from the computer cluster (section 0047, lines 27-29, with the returned information being stored in a database on the requesting computer for further reference, this means the first node must have access means to the database).

Regarding **claim 11**, Mann et al. anticipates a computer cluster according to claim 9, further comprising second access means for accessing the Management Information Base from outside of the computer cluster (section 0022, lines 1-11, with the system administrator accessing the database, and this administrator is outside the computer cluster).

Regarding **claim 12**, Mann et al. anticipates a computer cluster according to claim 11, wherein the second access means comprise a network interface in the first

computer node (section 0022, lines 1-11, with the system administrator accessing the database through the network control console, and section 0041, lines 23-30, with the system administrator able to access the network control console remotely, implying a network connection).

Regarding **claim 13**, Mann et al. anticipates a computer node for a computer cluster, the computer node comprising:

- at least one resource for performing at least one cluster-specific task (section 0027, lines 1-11, where nodes have instances of services running on them, equivalent to performing a task);
- first means for receiving a heartbeat message from another computer node (section 0047, lines 6-9, with the node receiving the discovery event);
- second means for retrieving state information for a heartbeat acknowledgment message to be sent as a response to said heartbeat message, the state information indicating the ability of said at least one resource to perform said at least one cluster-specific task (section 0047, lines 18-29, with the node gathering status information in response to a status request); and
- third means, responsive to the second means, for sending the state information in the heartbeat acknowledgment message to said another computer node (section 0047, lines 6-11, with the node publishing the identity event back to the controlling node that includes the status information).

Regarding **claim 14**, Mann et al. anticipates a computer node according to claim 13, further comprising fourth means for examining whether state information is to be

retrieved for the heartbeat acknowledgement message (section 0047, lines 18-20, with the node responding by submitting status information if the message request contained a status request, seen as examining the message as to determine if state information is to be retrieved).

Regarding **claim 15**, Mann et al. anticipates a method for obtaining state information in a computer cluster comprising a plurality of computer nodes, the method comprising the steps of:

- transmitting a heartbeat message from a first computer node of a computer cluster to a second computer node of the computer cluster (section 0047, lines 1-6, where the "discovery event" is interpreted as a heartbeat message since it identifies the source and request a response from the other host), the second computer node including at least one resource for performing at least one cluster-specific task (section 0027, lines 1-11, where nodes have instances of services running on them, equivalent to performing a task);
- awaiting receipt of a heartbeat acknowledgment message from the second computer node (section 0047, lines 6-11, with the second node publishing the identity event back to the controlling node that includes the status information, this responding act inherently includes the act of waiting for the response from the second node to the first node); and
- receiving the heartbeat acknowledgment message including state information indicating an ability of said at least one resource to perform said at least one cluster-specific task (section 0047, lines 6-11, with the second node publishing the identity

event back to the controlling node that includes the status information and lines 18-29, with the node gathering status information in response to a status request, and this information indicates the ability to perform task and is sent along with the return message).

Regarding **claim 16**, Mann et al. anticipates a method according to claim 15, further comprising a step of storing the state information sent to the first computer node in a Management Information Base (MIB) (section 0047, lines 27-29, with the returned information being stored in a database on the requesting computer for further reference, this is seen as equivalent to a MIB, since it stores management information).

Regarding **claim 17**, Mann et al. anticipates a method according to claim 16, further comprising a step of transferring data from the Management Information Base to an entity external to the computer cluster (section 0047, lines 29-32, with the information being supplied to the system administrator, seen as an entity external to the cluster).

Regarding **claim 18**, Mann et al. anticipates a method according to claim 15, wherein the step of a receiving the heartbeat acknowledgment message further comprises removing the second computer node from the cluster when no heartbeat acknowledgement message is received within a predetermined period of time (section 0046, lines 12-27, with the heartbeat signals being communicated on a normal basis before and after "discovery events" take place, and section 0041, lines 1-22, with the failure to receive continued heartbeat signals indicates a problem, and the failed node can have traffic rerouted from it, equivalent to removing it from the cluster).

Regarding **claim 19**, Mann et al. anticipates a method for providing state information in a computer cluster comprising a plurality of computer nodes, the method comprising the steps of:

- awaiting receipt of a heartbeat message from a first computer node of a computer cluster by a second computer node of the computer cluster (section 0047, lines 1-6, where the "discovery event" is interpreted as a heartbeat message since it identifies the source and request a response from the other host, and this is sent by a first node to a second node, and the second node would inherently be waiting for the message to arrive);
- receiving the heartbeat message from the first computer node, the heartbeat message including at least one resource for performing at least one cluster-specific task (section 0047, lines 1-6, where the "discovery event" is interpreted as a heartbeat message since it identifies the source and request a response from the other host and this is sent by a first node to a second node, and the second node receives the message, and lines 18-22, with the message including a status request, which would contain a request for information pertaining to the operating condition of the node, therefore the ability of the node to perform the service); and
- transmitting a heartbeat acknowledgment message including state information indicating an ability of said at least one resource to perform said at least one cluster-specific task (section 0047, lines 6-11, with the second node publishing the identity event back to the controlling node that includes the status information and lines 18-29, with the node gathering status information in response to a status request, and this

information indicates the ability to perform task and is sent along with the return message).

Regarding **claim 20**, Mann et al. anticipates a method according to claim 19, further comprising a step of examining, in response to the receiving step, whether state information is to be retrieved for the heartbeat acknowledgment message (section 0047, lines 18-20, with the node responding by submitting status information if the message request contained a status request, seen as examining the message as to determine if state information is to be retrieved).

Regarding **claim 21**, Mann et al. anticipates a method according to claim 20, wherein the examining step includes examining whether a predetermined condition is filled (section 0047, lines 18-20, with the node responding by submitting status information if the message request contained a status request, this status request is seen as the predetermined condition, as the responding node looks for this condition before sending the status information back to the requesting node).

Regarding **claim 22**, Mann et al. anticipates a method according to claim 21, wherein a step of retrieving state information for the heartbeat acknowledgment message and the transmitting step are performed when the examining step indicates that the predetermined condition is fulfilled (section 0047, lines 6-22, with the responding node receiving a discovery message that includes the predetermined condition of including a status request, and this status request causes the responding node to gather status information and send it back to the requesting node), and wherein the method further comprises the step of transmitting a heartbeat acknowledgment

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message without state information when the examining step indicates that the predetermined condition fails to be fulfilled (section 0047, lines 6-18, with the requesting node sending a discovery event, without the condition of including a status request, and the responding node simply returns identity information, equivalent to a heart beat acknowledgment, since it lets the requesting node know the responding node is present and active).

Regarding **claim 23**, Mann et al. anticipates a method according to claim 19, further comprising a step of determining a type of state information to be retrieved for the heartbeat acknowledgment message (section 0047, lines 6-22, with the node responding by submitting status information if the message request contained a status request, seen as determining the type of information to return in the message. The responding node will determine that full status information is being requested, or that basic identity data is being requested as the type of data to be returned).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adam S. Weintrop whose telephone number is 571-270-1604. The examiner can normally be reached on Monday through Friday 7:30am-5:00pm.

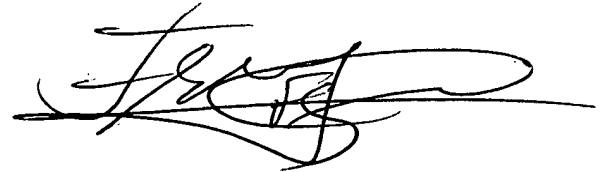
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Jules can be reached on 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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AW 3/29/07

FRANTZ JULES
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read 'Jules Frantz', with a long horizontal line extending to the right.

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